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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,578	04/14/2004	Hideo Hashimoto	63845(51379)	6535

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EXAMINER	
GOODLEY, JAMES E	

ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/824,578	HASHIMOTO, HIDEO	
	Examiner	Art Unit	
	James E. Goodley	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9, 12-14* is/are rejected.

7)☒ Claim(s) *10 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/14/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by ***Yamamoto (US 2001/0006357 A1)***.

Regarding **claims 1 and 3**, paragraphs 48-51; 88-90 and Fig. 17D of Yamamoto shows an oscillator circuit comprising a resonance circuit [80] formed of a crystal resonator [83] as an inductor component (as it is inherent that a crystal resonator has an equivalent inductance) and dividing capacitors [81,82], each dividing capacitor having a first end connected to the resonator and a second end connected to ground, an oscillation amplifier [91] driven by a power voltage [Vcc] connected to said resonance circuit, and a pull-down resistor provided between an output of the amplifier [at node NB] and ground, wherein said pull-down resistor is serially-connected dividing resistors, the serially-connected dividing resistors being a first pull-down resistor [101] connected circuit side and a second pull-down resistor [103] connected ground side (via

capacitor 104), and also a bias capacitor [102] is directly connected between a connected point between said dividing resistors and ground.

Regarding **claim 12**, Fig. 17D of Yamamoto shows the oscillator circuit of claim 1, further comprising a resistor [95] connected in series with the inductor component for reducing high-frequency current flowing therethrough (as this resistance will add to the LR time constant of the resonator 80 and further cut high-frequency content).

Claims 4, 5, 7, 8 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by ***Ogiso (US 6,933,794)***.

Regarding **claims 4, 5 and 14**, Figs. 1, 2 and 16, column 8, and lines 27-50 of column 15 of Ogiso show a frequency-switching oscillator comprising: a two-input [IN+, IN-], two-output [OUT+, OUT-] type of ECL (as per lines 48-50 of column 8) oscillation amplifier [2a] having signals of mutually opposite phase is connected to a resonant circuit formed of a resonator [comprising SAW devices Xm and Xn] and dividing capacitors [Cm and Cn], the dividing capacitors are connected to each end, respectively of the resonator as well as each dividing capacitor being connected to ground;

a first resonance circuit [for instance the combination of SAW devices Xm and Xn] provided with a first electronic switch [4a of Fig. 16] is connected between a pair of input-output terminals [for example input D1 and output SQ2 of amplifier 2a] for signals of mutually opposite phase (180 degree phase difference); and

a second resonance circuit [for instance the combination of SAW devices X(m-1) and Xn] provided with a second electronic switch [SW of Fig. 16] is connected between

another pair of input-output terminals [for example input D1 and output SQ1 of amplifier 2a];

wherein the resonance frequencies of said first and second resonance circuits are different (the 150MHz and 600 MHz bands as per lines 60-64 in column 15) and also said first and second electronic switches are selectively switched to select one of said resonance circuits; and

further comprising a bias resistor [R3 and R4 of Fig. 2] connected to each input of the oscillation amplifier.

Regarding **claims 7 and 8**, Ogiso discloses in lines 63-67 using quartz crystal or ceramic resonators in place of the SAW resonator in the shown embodiments.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Yamamoto in view of Ogiso***.

Regarding **claims 2 and 9**, Fig. 17D of Yamamoto shows the oscillator circuit of claim 1 except, "wherein the oscillation amplifier is configured of ECL differential logic, having two inputs and two outputs of mutually opposite phases."

However, Figs. 1 and 2 of Ogiso shows an ECL differential amplifier in the feedback path of a resonator [X1-Xn] with dividing capacitors [C1-Cn].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the circuit of Yamamoto by using ECL differential logic in a crystal oscillator feedback loop as in Ogiso for the purpose of further reducing noise and utilizing multiple phases for oscillation output via Ogiso's differential structure.

Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Ogiso in view of Marvin (US 6,559,730)***.

Regarding **claim 6**, Ogiso shows the oscillator circuit of claim 4, except, "wherein said oscillator is a voltage controlled oscillator such that said dividing capacitor acts as a variable voltage capacitive element and a control voltage is applied thereto to vary the oscillation frequency."

However, Fig. 1 of Marvin shows a well-known crystal oscillator configuration with crystal [12] having dividing capacitors [22 and 26] comprising a control voltage [55] to effect the capacitance of the dividing capacitors.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the circuit of Ogiso by including the variable voltage capacitive elements of Marvin in each resonant circuit of Ogiso for the purpose of more finely tuning oscillation frequency via a control voltage.

Regarding **claim 13**, Ogiso shows the oscillator circuit of claim 4, except, "further comprising a feedback resistor connected in parallel with each resonator."

However, Fig. 1 of Marvin shows a well-known crystal oscillator configuration with crystal [12] having feedback resistor [34] in parallel with the crystal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the circuit of Ogiso by including the feedback resistor of Marvin in the resonators of Ogiso for the purpose of further stabilizing oscillation frequency.

Allowable Subject Matter

Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claims 10 and 11**, Yamamoto discloses the oscillator circuit of claim 1, except wherein a resistance of the first pull-down resistor is less than a resistance of the second pull-down resistor. Paragraph 90 of Yamamoto discloses resistor 101 having a resistance of 1900 ohms and resistor 103 having a resistance of 100 ohms. However, the 1st pull-down resistor is claimed to be connected circuit side and the 2nd pull-down resistor is claimed to be connected ground side.

Response to Arguments

Applicant's arguments, filed 11/14/2005 with respect to specification and drawing objections have been fully considered and are persuasive. The objections to the

drawings and specification have been withdrawn, as drawing and specification amendments are satisfactory.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Regarding the applicant's arguments to the rejection of claim 1, language regarding the dividing capacitors having first and second ends connected to ground as well as the dividing resistors and bias capacitor connected precisely as claimed was only added after the first action.

Similarly, the applicant's arguments to the rejection of claim 4, language regarding the precise connections of the dividing capacitors and bias resistor as claimed was only added after the first action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Perkins (US 5,646,580) discloses switching between 2 crystal resonators in an oscillation circuit with ECL amplifier logic.

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James E. Goodley. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JG

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